# Montelukast

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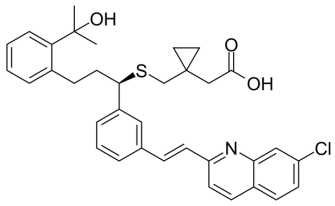
| **Cat. No.:** | HY-13315A |
| **CAS No.:** | 158966-92-8 |
| **Molecular Formula:** | $C_{35}H_{36}ClNO_3S$ |
| **Molecular Weight:** | 586.18 |
| **Target:** | Leukotriene Receptor |
| **Pathway:** | GPCR/G Protein |
| **Storage:** | Please store the product under the recommended conditions in the Certificate of Analysis. |




## BIOLOGICAL ACTIVITY

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| **Description** | Montelukast (MK0476 free base) is a potent, selective and orally active antagonist of cysteinyl leukotriene receptor 1 ($CysLT_1$). Montelukast can be used for the reseach of asthma and liver injury. Montelukast also has an antioxidant effect in intestinal ischemia-reperfusion injury, and could reduce cardiac damage. Montelukast decreases eosinophil infiltration into the asthmatic airways. Montelukast can also be used for COVID-19 research[1][2][3][4]. |
| **$IC_{50}$ & Target** | $CysLT_1$ |

**In Vitro**

Montelukast (5 μM; 1 h) inhibits APAP (Acetaminophen) (HY-66005)-induced cell damage[1].
Montelukast (0.01-10 μM, 30 min) diminishes the 5-oxo-ETE–induced cell migration and modulates the activation of the plasmin-plasminogen system[3].
Montelukast (10 μM, 18 h) modulates the activation of MMP-9[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Migration Assay [3]

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| Cell Line: | Eosinophils |
| Concentration: | 0.01-10 μM |
| Incubation Time: | 30 min |
| Result: | Diminished the 5-oxo-ETE–induced cell migration. |

Western Blot Analysis[3]

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| Cell Line: | Eosinophils |
| Concentration: | 10 μM |
| Incubation Time: | 18 h |
| Result: | Reduced the 5-oxo-ETE–boosted MMP-9 secretion. |

**In Vivo**

Montelukast (3 mg/kg; oral gavage) protects against APAP-induced hepatotoxicity in mice[1].
Montelukast (1 mg/kg; miniosmotic pump administration) reduces the airway remodeling changes observed in OVA-treated mice and blocks the actions of cysteinyl leukotrienes (LT) C4, D4, and E4 mediated by the CysLT1 receptor[2].

Montelukast (1 mg/kg; miniosmotic pump administration) reduces the elevated levels of IL-4 and IL-13 found in the BAL fluid of OVA-treated mice[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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| Animal Model: | C57BL/6J mice (8-week-old; 22-25 g) are induced acute hepatic injury[1] |
| Dosage: | 3 mg/kg |
| Administration: | Oral gavage 1 h after saline or APAP administration |
| Result: | Decreased serum levels of alanine transaminase (ALT) and aspartate aminotransferase (AST), and alleviated liver damage. |

## CUSTOMER VALIDATION

- J Cachexia Sarcopenia Muscle. 2022 Jun 9.
- Artif Cell Nanomed B. 2019 Dec;47(1):4234-4239.
- Eur J Pharmacol. 2022 May 15;923:174892.
- Patent. US20210309696A1.

See more customer validations on www.MedChemExpress.com

## REFERENCES


[1]. Khan AR, et al. Montelukast in hospitalized patients diagnosed with COVID-19. J Asthma. 2022 Apr;59(4):780-786.

[2]. Pu S, et, al. Montelukast Prevents Mice Against Acetaminophen-Induced Liver Injury. Front Pharmacol. 2019 Sep 18; 10:1070.

[3]. William RHJ, et, al. A role for cysteinyl leukotrienes in airway remodeling in a mouse asthma model. Am J Respir Crit Care Med. 2002 Jan 1; 165(1): 108-16.

[4]. Langlois A, et al. Montelukast regulates eosinophil protease activity through a leukotriene-independent mechanism. J Allergy Clin Immunol. 2006;118(1):113-119.





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